UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,496	09/08/2003	Paul T. Bender	02103-381001 / AABOSS16	9342

26162 7590 05/04/2011

FISH & RICHARDSON PC
P.O. BOX 1022
MINNEAPOLIS, MN 55440-1022

EXAMINER	
SY, MARIANO ONG	

ART UNIT	PAPER NUMBER
3657	

NOTIFICATION DATE	DELIVERY MODE
05/04/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)
	10/657,496	BENDER, PAUL T.
	Examiner	Art Unit
	MARIANO SY	3657

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 March 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-9 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-9 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/22/2011*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on March 15, 2011 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Akami et al. (JP 2003-223220A).

Akami et al. disclosed an active vehicle suspension system with fail-safe operation comprising: an actuator 3 with an armature and a stator, the stator having at least one coil with coil ends, power electronics connected to the coil ends to deliver power to the actuator through the coil ends, and a fail-safe clamping circuit 49A comprising a solid-state device connected to the coil ends, separated from the power

electronics, and powered by energy produced from the movement of the actuator that is directly conveyed to the clamping circuit from the coil ends, to passively damp the actuator during a failure of the power electronics by clamping the coil ends together through relay; wherein when the machine is operated as an alternator in the fail-safe mode, wherein the movement of the actuator generates a back electromotive force as a result of the armature moving relative to the stator within the actuator see par. [0052]-[0054].

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3, 5-9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patil et al. in view of Murty (US 4,815,575).

Re-claims 1, 3, and 6 Patil et al. disclosed an active vehicle suspension system with fail-safe operation comprising: an actuator 100 with an armature and a stator, the stator having at least one coil with coil ends A, B, C, power electronics connected to the coil ends to deliver power to the actuator through the coil ends, and a fail-safe clamping circuit 118, 120, 138 connected to the coil ends powered by energy produced from the movement of the actuator that is directly conveyed to the clamping circuit from the coil ends, to passively damp the actuator during a failure of the power electronics by

clamping the coil ends together through relay 120; wherein when the machine 104 is operated as an alternator in the fail-safe mode, electric currents are generated by the rotation of the armature via the screw threads 112 and the screw cage 106, and the generation of electric currents will definitely generate a back electromotive force which powers the clamping circuit through the coil assembly, see col. 4, lines 1-29.

However Patil et al. failed to disclose multiple coils and the clamping circuit electrically connects coil ends together to change the passive damping characteristic of the actuator and failed to disclose the clamping circuit comprises a solid-state device.

Murty teaches, as shown in fig. 2, the use of a multiple-phase coil assembly A,B,C, a MOSFET normally-open solid state switch 30, which is a silicon device, electrically connecting at least one coil end, see col. 3, lines 52-57.

It would have been obvious to one of ordinary skill in the art to merely provide the suspension system of Patil et al. with the known multiple-phase coil assembly which is a MOSFET normally-open solid-state switch and the switch electrically connecting at least one coil end, as taught by Murty, in order to change the passive damping characteristic of the actuator.

Re-claim 5 Patil et al. disclosed the clamping circuit comprising a rectifier 118 and a single unidirectional switch.

Re-claims 7 and 8, Patil et al. failed to disclose the use of a supplemental circuit, which comprises a bipolar Royer oscillator capable of operating at an input voltage of approximately 0.5 volts, for boosting the back EMF.

It would have been obvious to one of ordinary skill in the art to use a supplemental circuit to boost the voltage in order to enable the switch of the clamping circuit. As for the supplemental circuit comprises a bipolar Royer oscillator capable of operating at an input voltage of approximately 0.5 volts, it would have been obvious to one of ordinary skill in the art to use a bipolar Royer oscillator as merely a design choice as a selection of specific well known elements to perform a specific function.

Re-claim 9 Patil et al. was silent to disclose wherein the clamping circuit comprises switch circuitry enabled during vehicle startup and shutdown.

It would have been obvious to one of ordinary skill in the art to enabling the clamping circuit during vehicle startup and shutdown in order to ensure the generation of a force during a failure of the suspension device so as to provide safety.

Re-claim 11 Patil et al. failed to disclose wherein the clamping circuit comprises switch circuitry pulsed to change the passive damping characteristic of the actuator.

Murty teaches, as shown in fig. 2, wherein the output of the microcomputer 35 is a pulse modulated switching voltage which is provided to a switch 30 (part of the clamping switch) and thus control resistor 23 and the damping of the suspension, see col. 3, lines 52-57.

It would have been obvious to one of ordinary skill in the art to merely provide the suspension system of Patil et al. with the known use of the output of the microcomputer, a pulse modulated switching voltage, which is provided to a switch (part of the clamping switch) and thus control resistor and the damping of the suspension, as taught by Murty,

in order to change the passive damping characteristic of the actuator so as to adjust the damping.

Response to Arguments

6. Applicant's arguments filed on March 15, 2011 have been fully considered but they are not persuasive. The references clearly teach the claimed limitations as outlined in the office action above.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIANO SY whose telephone number is (571)272-7126. The examiner can normally be reached on Mon.-Fri. from 8:30 A.M. to 2:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi, can be reached on 571-272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/MS/

April 26, 2011

/Robert A. Siconolfi/

Supervisory Patent Examiner, Art Unit 3657